



RURAL SANITARY AUTHORITY.

CARDIFF UNION.

ANNUAL REPORT

FOR 1893,

BY

RICHARD PRICHARD, M.D.,

MEDICAL OFFICER OF HEALTH.

CARDIFF:

C. WAKEFORD AND SONS, PRINTERS AND PUBLISHERS, BUTE DOCKS.

1893.





RURAL SANITARY AUTHORITY

CARDIFF UNION.

ANNUAL REPORT

FOR 1893,

BY

RICHARD PRICHARD, M.D.,

MEDICAL OFFICER OF HEALTH.

CARDIFF:

C. WAKEFORD AND SONS, PRINTERS AND PUBLISHERS, BU1E DOCKS.

1893.





TO THE
CHAIRMAN AND MEMBERS
OF THE

Cardiff Union Rural Sanitary Authority.

GENTLEMEN,

I beg to present to you my Seventh Annual Report. The instructions of the Local Government Board prescribe that such Report shall contain tabular statements of the sickness and mortality within the district, that it shall be chiefly concerned with the conditions affecting health, and particularly with the influences affecting or threatening to affect injuriously the public health within the district. The causes, origin, and distribution of disease may be recorded, and also any improvement or deterioration that has occurred during the past year in conditions conducive to health or to disease. The Report should contain an account of the actions taken by your Authority and your Officers to enforce the various Health Acts and Bye-Laws with a view to better the sanitary state of the district.

The following Report is drawn up in accordance with the above memoranda.

AREA. —The Area of the District is 68,018 acres, or upwards of 106 square miles.

VITAL STATISTICS.

POPULATION.—The inhabitants numbered 19,160 souls at the last census, and, on the supposition that the increase in the preceding decennary has been maintained in this, it is estimated that the population of the district was 19,718 in the middle of the year. Judging from the number of new houses which have been erected I think that the actual population is greater than that estimated, and that the increase has been more rapid within the last three years, particularly in those parishes contiguous to, or near the County Borough of Cardiff.

BIRTHS.—*Six hundred and eight* births were registered, amounting to a rate of 30·82 per thousand of the estimated population, and 31·7 of the census population. The births were 22 less than in 1892.

DEATHS.—Two hundred and ninety-four deaths were registered (viz., 138 males and 156 females) which number is equal to an annual mortality of 15·34 per thousand of the census, and 14·91 of the estimated population.

The natural increase in the population of the district during the year, by excess of births over deaths, was 314.

The proportion of deaths to births was as *one* is to 2·06. The mean or average age at death was 35 years.

The number of deaths at the different ages during the last six years—since the district was divided—in which a comparison is possible, will be seen from the following table :—

				MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.						
				At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 60.	60 and up- wards.
During the Year	1888	...		263	60	19	11	16	64	93
"	"	1889	...	303	71	14	20	23	82	93
"	"	1890	...	257	61	17	10	21	61	87
"	"	1891	...	383	74	39	24	23	105	118
"	"	1892	...	270	74	25	21	16	64	70
"	"	1893	...	294	68	25	21	21	64	95

The proportion of infant deaths was more than one to every nine births, or, in other words 11·1 per centum of the children died during the first year of their existence. The infant mortality was at the rate of 3·44 per thousand of the population, and was equal to 231·2 per thousand of the deaths in the district during the year.

The following are the causes of death among infants under one year of age :—Diarrhœa, 14 ; Dyspepsia, 5 ; Premature Birth, 11 ; Diseases of the Respiratory System, 6 ; Diseases of the Nervous System, 13 ; Marasmus, 6 ; Scarlatina, 2 ; Diphtheria, 1 ; Croup, 1 ; Whooping Cough, 1 ; Influenza, 1 ; Eczema, 2 ; Syphilis, 2 ; Meningitis, 2 ; Sloughing after Vaccination, 1.

The mortality of aged people was higher by 25 than in the preceding year, viz. :—

95 persons were 60 years and upwards at death.

60 " " 70 " " "

13 " " 80 " " "

1 person was 93 at Death.

Nine deaths were *uncertified* by a medical man, or the coroner, two of which were in Llanishen parish, four in Pentyrch, two in Radyr, and one in Rudry.

Nine deaths were due to cancerous diseases of various organs.

PHTHISIS.—Twenty-four deaths were certified “phthisis,” and 12 deaths to other Tubercular diseases, the combined number is equal to a rate of 2·33 per thousand of the estimated population. Phthisis is now regarded by scientists as an infectious disease. It depends for its diffusion on a predisposed constitution, and on the presence of the germ or the bacillus of Tubercle. A receptive constitution may be the result of heredity, or it may be acquired through living in a damp and impure atmosphere, or by working in a cramped sedentary position. Such environments render the system favourable to the development of the specific poison. This infection or virus may be furnished in various ways, *e.g.*, (1) Breathing the same air as the phthisical patients, living in the same room, or sleeping in a bed which has been occupied by a consumptive person and not disinfected; (2) drinking the unboiled milk of cows with tuberculous udders, and eating the flesh of tuberculous animals. There are numerous instances of the spread of the disease in such manner. The consumptive person is ever hopeful of recovery, and with every aggravation of his malady he and his friends fancy he catches cold, and often, “for fear of draughts” do their best to exclude the fresh air. Hence, the sick room becomes hot and badly ventilated, and with every movement the dried tubercle-laden dust is wafted about and inhaled by everyone who enters. On the other hand it is estimated that between ten and fifteen per cent. of all the cattle slaughtered for human food in this country are affected with tubercular disease, and that about 20% of the milk-supplying cows in large towns are similarly affected. Of the latter class, only the few in which the udder is diseased are at present regarded as dangerous to those drinking their milk.

The lesson to be deduced from the above *data* is, that a consumptive patient should be treated in every respect as a case of infectious disease, that the milk should be boiled, or preferably steamed, that the meat should be thoroughly cooked—underdone meat being unsafe for food, and that all meat tainted with tubercle should be excluded from the market.

DIARRHŒA.—There were 20 deaths from diarrhœa, three being those of adults, aged 68, 72, and 77 years respectively; the remaining 17

were those of children under two years, 14 of whom were under one year. More than half this number occurred during the sultry weather in the month of July, and they were not confined to any one particular village or locality. The mortality from Diarrhoea was at the rate of 1.01 per thousand of the estimated population.

INFECTIOUS DISEASES.

The following are the number of the deaths registered from the principal Infectious or Zymotic diseases :—Scarlet Fever, 6 ; Diphtheria, 3 ; Membranous Croup, 3 ; Enteric Fever, 5 ; Measles, 1 ; Whooping Cough, 2 ; Total, 20. Which number is equal to a rate of 1.01 per thousand persons living. Ten deaths were also attributed to Influenza.

The following table shows the mortality from Infectious diseases in the district as at present constituted, since I have been your medical officer :—

	Small Pox.		Scarlatina.		Diphtheria		Membranous Croup.		Enteric Fever.		Continued Fever.		Puerperal Fever.		Erysipelas.		Whooping Cough.		Measles.	Influenza.
	Notified.	Fatal.	Notified.	Fatal.	Notified.	Fatal.	Notified.	Fatal.	Notified.	Fatal.	Notified.	Fatal.	Notified.	Fatal.	Notified.	Fatal.	Notified.	Fatal.	Fatal.	Fatal.
1887	7	2	...	...	..	1	...	1	...	4	...	...	...	3	...	1	...	2	...	..
1888	28	...	2	1	...	1	22	2	...	1	...	4	..	2	...	2	2	...
1889	8	6	...	...	33	7	7	..	...	1	...	1	...	11	9	...
*1890	38	1	4	1	...	...	19	2	2	...	2	2	2	...	15	3	2	2
1891	318	9	3	1	2	2	31	5	..	1	2	2	6	...	12	2	9	13
1892	257	10	10	3	4	4	18	3	...	..	2	1	6	1	88	6	...	10
1893	161	6	37	3	3	3	28	3	3	..	1	1	9	2	50	2	1	10

* The Infectious Diseases (Notification) Act, 1889, with Whooping Cough included, came into operation on 1st April, 1890. Fifteen cases were notified that year before it came in force.

The different localities in which these deaths occurred may be seen by reference to the Table A, appended to this Report.

NOTIFICATIONS of *two hundred and eighty-two* cases of the diseases which are notifiable in your district were sent to me during the year 1893 ; they are as follow :—Scarlatina, 161 ; Diphtheria, 27 ; Membranous Croup, 3 ; Enteric Fever, 28 ; Continued Fever, 3 ; Puerperal

Fever, 1 ; Erysipelas, 9 ; Whooping Cough, 50. The distribution of the above cases in the various parishes may be seen on reference to the second part (B) of the appended Table. There was only one instance of dual notification as required by the Act, the medical attendant was the only person who did so habitually. The notifications were at the rate of 14·2 per thousand of the estimated population.

ISOLATION.—It will be observed that the notifications of Scarlet Fever predominated over all the other notifiable diseases collectively, and yet it is, in my opinion, one of the easiest to isolate successfully. It requires only a spare room in which to segregate the sick person, and intelligent care on the part of the nurse. The particles of skin cast off in the peeling process are laden with the infection of Scarlet Fever, and they cling readily to the hands, and to articles of clothing, etc. To prevent this the patient's skin should be washed at intervals, and anointed with some oily substance ; and the attendant should wash her hands and change her dress if she has occasion to leave the sick chamber. It is evident from the number of cases which prevail yearly that these precautions are not carried out. Your officers experience the greatest difficulty in persuading parents that the trouble is not ended when the rash disappears and the feverish symptoms abate. We are told sometimes that the medical attendant has consented to the patient at this stage to “come down by the fire.” Under any circumstances, however, isolation in a small cottage is often quite impossible, and the only solution of the difficulty is to remove the sick person to a Fever Hospital. I have advised your Authority on former occasions to provide an Isolation Hospital and you concurred in this opinion so far as to have arranged with the Cardiff Corporation to receive patients from your District. Hitherto, the accommodation has been very limited, and only four cases from the parish of Llandaff were removed to the Sanatorium last year. When it is completed there will be room for eighty Scarlatina patients—a number which will, I surmise, be insufficient for the use of the Borough alone, when the Hospital becomes known and appreciated. The chief objection to a central Hospital has been the distance which it may be necessary to convey patients, but this is not insuperable. Little or no hardship would befall 95% of patients to be brought to a central spot, say, near Whitchurch. The roads are good, and the distance seldom exceeds 4 miles, with the exception of the parish of St. Mellons, on the East, and the sparsely populated parishes on the West. I have known cases conveyed greater distances without harm. But this difficulty might be minimised in the following manner. The District is traversed by railways in every direction. An arrangement might be made with the different companies whereby the Ambulance Van could be run on to a truck at a convenient station, and attached to the next incoming train, and conveyed in a short time to a suitable place. The necessity for this proceeding would rarely occur,

DISINFECTION.—In the after-treatment of infectious diseases disinfection is indispensable. This work is now executed as carefully and efficiently by your inspectors as the means at hand will permit. You do not possess a steam disinfector. A portable one is much needed. When an infectious disease breaks out, for instance, Scarlet Fever, the present routine custom is as follows :—a handbill, giving the precautions to adopt, is left at the house, also a small bottle containing Carbolic Acid with instructions how to vaporise some of it daily in the sick-room, some disinfecting powder, and a supply of Carbolic Oil with which to anoint the skin. When it appears that the process of desquamation is completed, —and never before the end of the sixth week—the house is disinfected in the usual manner, by fumigating with Sulphur ; washing every article of furniture etc. which may have been exposed to infection, with a solution of Carbolic Acid ; soaking the clothing, bedding etc. in a disinfecting solution, and then boiling and washing them. Thorough disinfection is very difficult to accomplish, and is, possibly, at times incomplete, in the cases where the sick person is allowed to wander all over the house and out of it during the convalescent stage. Hence, I advise that the child should not be permitted to return to school for a fortnight after the house has been disinfected, a practice which appears to answer admirably.

PREVALENCE OF INFECTIOUS DISEASES DURING 1893.

SMALL POX has not appeared in the District since 1887. Bills, giving the precautions against an outbreak of the disease, have recently been posted in the different parishes, and leaflets containing the same information have been distributed in those parishes immediately threatened. Should the disease break out an endeavour must be made to cope with it as successfully as seven years ago.

SCARLET FEVER.---Notified, 161 ; fatal, six.

The following table shows the prevalence of the disease during each month, as notified

1st quarter	Jan. ...	20	2nd quarter	April ...	4	3rd quarter	July ...	6	4th quarter	October ...	15
	Feb. ...	9		May ..	12		August ...	12		Novem. ...	15
	March ...	11		June ...	7		Sept. ...	28		Decem. ...	12

In the month of January there were a few cases at St. Fagans amongst school-children, which were traceable to a family that had neglected to report a mild attack of the disease. No prosecution was recommended as there were certain circumstances in this particular instance which condoned the neglect. The prompt precautions adopted were enough to smother the outbreak without closing the day-schools.

During the first quarter of the year there were several sporadic cases in the Western Parishes, and which, through early notification, it was possible to limit to the individual affected or at most to the family circle.

In LLANDAFF PARISH, about a dozen cases, in three families, happened at Maindy in March and April, and a few isolated cases have occurred here at intervals since. There were a few cases during the second and

third quarter of the year in the City, Ely, Pontcanna, and Llandaff Yard. Some of them were children attending the day-school, but only in a few instances could direct infection be clearly traced. The dissemination of the disease might have been very much curtailed had it been possible to isolate the first cases. This fact was well-illustrated in the four instances where the patients were removed to the Borough Sanatorium.

Dinas Powis village was invaded in the month of June, and cases of Scarlet Fever cropped up at intervals amongst school-children for several months. It was found latterly that the children of one family in the village had had the usual symptoms of the disease, but it had not been notified. They were allowed after a time to return to school, and they readily spread the infection among their schoolfellows, especially as they were not remarkable for their personal cleanliness. It is to be regretted that the evidence was insufficient to sustain a prosecution.

There were a few cases at Llancafán at the end of the year among the school children. The original source of the infection could not be traced.

Whitchurch parish escaped last year with few isolated outbreaks. This immunity is probably attributable to the fact that most of the young children had become immured by attack during the epidemic of two years ago.

DIPHTHERIA.—Notified 37; Fatal three.

The deathrate was 11.1 per cent. of the cases notified which is below that of genuine diphtheria. This disease is sometimes confused with follicular inflammation of the tonsils, in which there are patches of exudation in the throat. Unless the observer has had special opportunities to study the distinguishing features, a mistake may readily happen. Moreover the latter disease is often met with where the surroundings are cold and damp; and it sometimes affects several members of the household at the same time, like a contagious complaint. Although mild cases occur often at the beginning and waning of an epidemic, diphtheria is perhaps the most fatal of the infectious diseases, and it demands rigorous treatment and isolation. The infection propagates and grows best where dampness, bad ventilation and filthy habits obtain.

I have repeatedly alluded to the apparent association of diphtheria with exposure to the emanations from decomposing excremental filth. Decomposing urine is probably a most prolific generator of diphtheric germs. The worst case I ever saw was in a house against the wall of which was a public urinal, and which was the only nuisance that could be suspected as a cause. Great care should be taken in keeping clean latrines attached to schools and public houses; not to permit cesspits to become dangerous to health, and not to spread excremental filth near dwelling houses.

Having expatiated on what I regard as the common breeding ground of the diphtheria virus, I do not wish to have you ignore the highly contagious character of the disease, which is an established fact.

The following is a brief summary of the cases notified during the year 1893 :—

Llandaff Parish; There were six cases of infectious sore throats at a house on Fairwater Road, Ely, in the month of January. The Water was polluted and the drains were defective. At Maindy a woman aged 36 years, in January, and a man aged 70, in April, were reported to have diphtheria, but their attacks were mild and short. A child, 5 years old, was notified as having it but the complaint subsequently turned out to be Scarlet Fever.

Llanedarne—A boy, aged 10 years, living at Ty-to-maen Farm, had a severe attack in December last. There was no suspicion regarding the day-schools. The surroundings of the house were damp, and abutting it were the foul and dilapidated piggeries.

Penmark; A girl, 14 years old, residing at Fonmon, had diphtheria in June. A month previous a young child, who had suffered with the disease in March came to live at the cottage, which was small and badly ventilated. It is possible the child may have had about him some article that had not been disinfected. On December 4th a young girl took ill at Penmark Village, with what was at first supposed to be Quinsy, to which she was subject. She died at the end of the week. The cottage was small and without through ventilation; the privy cesspit was in a foul state. A young man, living at Fontigary, fell ill on December 16th. He had visited the infected house at Penmark, and attended the wake. A brother of the deceased girl sickened on December 21st with membranous croup, from which he died in a few days.

St. Andrews : There were two cases of diphtheria in May at Chamberlain Row, Eastbrook. The water supply was bad; the well has since been closed. During the last quarter of the year three cases at Dinas Powis were notified by one gentleman, but they were of very mild type, and no local cause could be detected.

Rudry : At Garth Place a young woman suffered from diphtheria in November; but the origin of the infection could not be traced. In the same month an infant died of Hydrocephalus at a cottage called Berllan-Gollen. The child's mother and a neighbour, who had nursed it sickened on the same day with diphtheria. and, subsequently two children of the former contracted it—the younger of whom, aged 5 years, died. This cottage is small, damp, and badly ventilated. The privy was foul, and pigs were kept close to the house, so as to be a nuisance.

The water supply was a brooklet liable to pollution.

Whitchurch : There were three mild cases in the Heath district which rapidly recovered. At Primrose Hill, an infant 6 months old, fed entirely at the breast, took ill of diphtheria on October 3rd and died on the 5th. No local cause could be detected.

MEMBRANOUS CROUP.—Notified three; all fatal.

One child 2 years old was at Gwaelod-y-Garth; The house, was damp. Another case, a child 18 months old, was at Monachty. The remaining one, was that already referred to at Penmark.

ENTERIC FEVER.—Notified, 28 ; fatal, 5.

Had it not been for the outbreak at Llandaff Yard, typhoid fever would have been less prevalent in the District during 1893 than for some years past. This comparative immunity may have been due partly to the prolonged drought, drying up the stagnant pools and ditches, but more, I think, to the improvement in the water supplies of the District generally which is gradually taking place.

St. George's Parish.—Two young children at The Drope contracted the disease through drinking polluted water.

Penmark Parish.—A case at Welford Farm was supposed to have arisen in a like manner.

Pentyrch.—A girl at Gwaelodygarth sickened after drinking polluted water flowing from the old level. There were three cases of *continued fever* at Penygarn which appeared to be caused by the nuisance arising from keeping pigs too near the dwelling house and omitting to remove the manure. A case at Tynywaen Row was probably due to a foul ditch and offensive piggeries, coupled with extreme poverty.

Llandaff.—Eighteen cases, equal to 64 per cent. of the total number, notified were in this parish ; fourteen of which were at Llandaff Yard. The latter were distributed as follows :—Solomon St. 4, Gabalva Lane 3, Gabalva Terrace 3, Blosse Road 2, and Watson's Road 2. All the fatal cases of typhoid fever were at Llandaff Yard. It should be stated that, with few exceptions, the Corporation water was laid on in the spring of the year. After the completion of the drainage scheme and the house connections had been made, it was found that the construction was faulty. Owing to the inflowing of surface water into the settling tank, the pumping engine was unable to cope with its work ; and consequently, the sewers became one immense stagnant cesspool. Moreover, there was a case of enteric fever in Solomon Street, and another in Gabalva Road in April, so that the sewers must have got infected with the specific germ. And to make matters worse, there were several open man-hole gratings in the different streets which emitted very offensive smells. Eight typhoid cases occurred in August and September which were attributed to this cause. The outbreak ceased, and the nuisance was abated. when the man-holes were closed, and ventilating shafts erected. There were three cases since at the Cottages in the market garden at the end of Gabalva Lane, in which the man-hole grating was only recently closed. The water supply for these cottages is from a pump-well. It was lately analysed and gave satisfactory qualitative and quantitative chemical reactions, but I have grave doubts as to its purity

ERYSIPELAS.—There were nine cases notified, two proved fatal. There was nothing remarkable to note about them.

WHOOPING COUGH.—Notified, 50 ; fatal, two.

An outbreak of the disease in Penmark parish was referred to in my last Annual Report. A few cases were again notified in the first quarter of last year, and about a dozen cases from the contiguous parish of Llancarfan.

In the month of May it was reported to have broken out at Ely (Llandaff Parish), and from there it spread into the City, where it has been prevalent during the latter half of the year. The disease is one which is highly contagious, and its early symptoms are often not distinguishable from ordinary colds ; hence, it spreads rapidly among susceptible persons.

INFLUENZA.—Notified, none ; fatal, ten ; the same number as during the previous year. The disease invaded the Rural districts from the Town soon after it appeared in the latter in the beginning of November. It spreads less rapidly and lingers longer in sparse rural parishes than in towns, owing to there being less inter-communication.

There is little doubt now I think, that it is of the character specified in my former reports, highly contagious. And I go further, the non-catarrhal epidemic influenza resembles most of the specific fevers in that one attack *in the great majority of cases*, confers immunity against a second. This is not as yet an orthodox tenet, because doctors are too apt to call everything “influenza” without specifying the particular kind, and people like to think they have had so many “touches of influenza.”

INSPECTIONS, Etc.

The house to house visitation has not been systematically carried out last year owing to your Chief Inspector and Surveyor being largely occupied with the preparation of the drainage scheme for Whitchurch parish and for Llanishen, and with the supervision of the works in connection with the drainage of Ely etc. The Assistant Inspector had often to help him at the above work, and to do what he could of the routine duties. An assistant has been much needed lately, and it will be imperative to engage either a Clerk of Works, or an additional Assistant Inspector if Mr. Fraser has to supervise the construction of the Whitchurch Drainage Scheme.

It is impossible, in the ordinary course of work, that the Sanitary Inspectors can discover every defect, particularly those nuisances which are of the people's own creation, and of which they will not complain. This is especially true of overcrowding and inattention to ventilation. It is greatly to be deplored that so much apathy exists with respect to sanitary matters. One often observes every attempt, from a sanitary point of view, at self-preservation disregarded, and no thought given to

obligations to one's neighbours. Popular lectures in these subjects would conduce to excite interest and dispel ignorance, and it will soon be feasible to do so under the favourable auspices of the District, or Parish Councils. In the meantime a great amount of good would accrue if Ministers of religion, Guardians and others, were to correct or report those who are negligent and a public danger. No one has a right to harm himself or his neighbour.

PIG KEEPING : One of the most common and, at the same time, most serious nuisance met with is the keeping of pigs. The pigstyes, in the mining villages, are often very inadequate, sometimes only enclosed large casks, without pavement or drains. These erections may be a sufficient distance from the owner's house, but they are frequently too near a neighbour's dwelling. This branch of farming is very difficult to suppress; for when an owner is compelled to dispose of his stock on account of its being a nuisance, a successor to the departed one may be looked for within very few weeks. Pig-keeping is always more or less a nuisance, and I am strongly of opinion that no sty in a village, should be allowed to be occupied if it is within 100 feet of a dwelling house.

Ventilation : The purity of the air we breathe is perhaps of more vital importance than that of food and drink. The bad food we could abstain from or render harmless by cooking, and the water we could boil and filter; but we must breathe the air around us whatever its quality may be. It is estimated that impure air causes $\frac{1}{4}$ th of all the deaths that occur, and about ten times as many non-fatal illnesses as deaths; besides a vast amount of impaired health both of body and mind which it is impossible to guess at. Moreover, the quality of the air inhaled influences the character and course of disease. For instance, the severity of an attack of Scarlet-Fever is, other things being equal, relative to the quality of the air breathed. A great deal was done last year to improve the ventilation of cottages and to prevent overcrowding.

WATER SUPPLY. This department of work has received much attention during the year, as it will be seen from the subjoined particulars. But a great many farms and cottages, and even some hamlets, are without an adequate supply of pure water.

Summary of Works Executed, Nuisances Abated, Etc.

The particulars of the following summary were supplied to me by your Surveyor, Mr. W. Fraser, A.M. Inst. C.E. &c., and they bear eloquent evidence to the activity of your Inspectors.

CAERAU.

The trade of horse-slaughtering is still carried on near Saintwell. Several minor nuisances arose in connection with it, and were abated. The works are fortunately in a secluded spot. The premises are somewhat inadequate for the business, but the owner has promised to supply better ones.

LLANCARFAN.

This parish has a population of about six hundred persons, and an area of nearly 5,000 acres. It requires considerable supervision, the houses being somewhat scattered. The sanitary arrangements are fairly satisfactory, but the water supply is somewhat defective and insufficient in most places. At Llanbethery, the only available supply is from a spring at an inconvenient distance, and situate in a dingle. A better supply is urgently needed. The above remarks are also applicable to the spring which supplies Llancadle. At Llandarf village the water supply is from a tap provided by your Authority ; its quality is good.

LLANDAFF.

Drainage ; I reported last year that over £4,000 had been expended in sewerage Llandaff Yard and Maindy. After the house-connections had been made under the supervision of your Inspectors, and the gas-pumping-engine started in March, it was found that it could not cope with its work owing to the inflow of surface water into the badly-jointed pipes, and through the defective brick and concrete work. An expert was called in to estimate the liability of the Engineer and Contractor who were responsible for the work. The Surveyor of your authority had the ground opened out and at once proceeded with the reconstruction. He substituted cast-iron pipes for the 12-inch stoneware pipes and used proper cement and other materials in remaking the "settling tank." This work cost over £200, but it was completely successful, and since then the pumping has gone on satisfactorily. I have already referred to the outbreak of Typhoid fever during the drought, which was supposed to have originated from the noxious gases emanating from the open man-hole gratings in the streets. Acting on the recommendation of the Sewerage Sub-Committee you had all the surface gratings closed, and cast-iron, gas-ventilating shafts erected—one at the top of Solomon St., and another near the Baptist Chapel, Maindy. These shafts are similar to those, designed by your Surveyor, in use at Llandaff City. Since this work was executed no complaints have been received.

The sewers of the City, of Llandaff Yard, and of Maindy, were flushed by means of the water vans, but it was both expensive and inefficient. Your Authority have, therefore, had ten automatic flushing tanks fixed—one at each sewer terminus. Four at the City of Llandaff, four at Llandaff Yard, and two at Maindy. These tanks were designed by your Surveyor, and they cost about £250. They are fed from the Corporation water mains. A similar tank is now being constructed on Llandaff Green at a cost of £25. They appear to answer admirably.

The sewerage of Ely was begun in August and completed in December. Some 1500 lineal yards of 12-inch, and 500 lineal yards of 9-inch stoneware socketed pipes were laid, and 150 yards of 9-inch cast-iron pipes were laid under the Great Western Railway, and as syphon under the Ely river. The syphon is 250 feet in length, and it was successfully fixed

before a series of floods set in, which greatly interfered with the unfinished work. Automatic flushing tanks were fixed at the sewer termini, and gas cast-iron ventilating shafts at the upper ends; the street manhole gratings were closed. The Proprietors of the Ely Paper Mills claimed £80 compensation from your Authority for laying a 12-inch pipe through a field 200 yards long, and have on arbitration been awarded £30. The inhabitants of Ely Road, Llandaff, supported by the Vestry, solicited your Authority to provide an outlet for the drainage of their houses. As the Corporation of Cardiff declined to allow you to drain into their sewer, about 300 lineal yards of drain-pipe was laid, and a settling tank constructed. At present, Sulphate of Iron and Polarite are used to clarify the affluent before it passes into the ditch.

The laying-on of the Corporation water to the houses at Llandaff City increased the quantity of sewage for disposal, and necessitated your acquiring two additional acres of land from the Ecclesiastical Commissioners for filtration purposes. One of the conditions of their agreement was that you should lay on water from the mains to Court Farm. This work was done at a cost of about £50. Five acres will shortly be used for intermittent downward filtration.

You acquired last year the necessary powers for making eight streets at Llandaff Yard and Maindy. Your Surveyor has since prepared Plans, Sections, and Provisional Apportionments for executing the works, which he estimates to cost about £2,225. It is urgently needed.

About 18 acres of land at Fairwater Grove, Llandaff, is being laid out by the original owner, who has the streets and drains made according to plans passed by your Authority. He wanted also to construct a sewer, but to this you could not consent, as there is no outfall available—the Cardiff Corporation cannot in the meantime permit it to discharge into Ely sewer. Hence, you will have to “direct” that such houses as may be built shall drain into a covered cesspool, made in accordance with your Bye-laws. Application has since been made to your Authority to provide an outfall for the above-mentioned sewer.

The scavenging of the City, Ely, Pontcanna, Llandaff Yard, and Maindy, has been done satisfactorily.

Water Supply: The Cardiff water is now laid on to nearly all the houses in the above villages and adjoining residences.

LLANISHEN.

Water Supply.—Your arrangement with the Cardiff Corporation to supply water for this growing village was approved by the Local Government Board, and over two miles of cast iron mains were laid. A considerable number of the residents have already availed themselves of it, and every opportunity is taken to get others to take it. No new house is allowed to be occupied unless this supply is laid on, or it is provided with well-water which has been proved by analysis to be pure and plentiful.

Drainage.—A drainage scheme for Llanishen village was prepared by your Surveyor, who estimated its cost at about £2,000. Provisional arrangements were made with the Marquess of Bute for five acres of land to be used for filtration purposes. The scheme was submitted to the ratepayers at a special vestry meeting, and disapproved by them on account of the expense, and not yet needed for the requirements of the place. This policy is very selfish and short-sighted. A village which is provided with a constant supply of water will have more sewage than it can economically deal with by means of cesspools, and nuisances will constantly arise. Besides, the cesspools are continually overflowing, especially in wet weather, and the emptying of them, which is now done through you, is a very troublesome, offensive work. A proper drainage system is therefore urgently required.

PENMARK.

The village of East Aberthaw is the terminus of the Cowbridge and Aberthaw Railway; a great many excursionists are brought to the place in summer-time. It has improved in appearance and in its sanitary arrangements, but a good deal remains to be done. The cottages are too small, badly ventilated, and difficult to keep clean, and the thatch soon decays. In all these outlying parishes proper houses for the working-classes are very much required.

PENTYRCH.

During the long drought of last summer the public water supply failed almost completely. Your Authority did what you could to provide against this contingency. The public well at the lower village was opened and repaired, and a cattle pond constructed at a cost of about £30. A Storage Tank was erected on the Garth Mountain about 200 feet above the Colliers' Arms public-house, and from this cast-iron pipes led to a tap at the side of the public road. This convenience has proved a great boon to the many people who reside near. It is also available for future extension.

The difficulty hitherto experienced to provide Lower Pentyrch with water, is about to be removed. The Cardiff Corporation have agreed to supply water in bulk for the district. Your Surveyor is preparing plans for the work, which is estimated to cost about £600.

RADYR.

A scheme to supply water for the lower part of the parish was prepared by your Surveyor, and approved by an expert, who was consulted. A second analysis of the water was unsatisfactory. Your Authority and the Local Government Board Inspector deemed it undesirable to proceed with the scheme pending an application to the Cardiff Corporation. The latter have now signified their consent to supply water in bulk, by meter fixed at Tongwynlais, on the western boundary of the Parish of Whitchurch. Your Surveyor has prepared plans for its distribution to

Tynant, Morganstown, and the houses near Radyr Station, by means of a 4-inch pipe and branches. This work, estimated to cost £1,100 is to be executed forthwith.

RUDRY.

Some improvements have been made by the proprietor of the Waterloo Tin-works, by erecting a new shed and tanks for crystalising copperas from the waste acid washings. Owing to depression of trade and strikes, the works were more or less idle for a long time, and, therefore the pollution of the Rumney river was not as bad as it might have been.

Water Supply.—Four of the new houses near the Tin-works, mentioned in my last Annual Report, were recently occupied without your sanction. In December last the owner and the manager of the works were summoned under Sect. 6 of the Public Health (Water) Act, 1878, and the cashier was subpoenaed as a witness. Four summonses were taken out in each instance, and the case was heard at Caerphilly on the 19th of December. It was adjourned for a month in order that the Building Club to which the houses belonged, might provide a proper supply. The Club has asked your consent to a supply from the spring about 200 yards from the houses, but you refused to act until an analyst's report of a sample of the water, taken in the presence of your Inspector, is produced.

The water supply of the whole parish of Rudry is unsatisfactory. The supply for Porset Row is from a streamlet flowing through the pasture-land, and many houses in the neighbourhood of Rudry Church and Maenllwyd Inn are without a supply at convenient distance. Several cases of sickness were attributed to bad water. A good supply of water for the upper part of the parish might be got from a spring above Rudry Church. It could be stored and gravitated by iron pipes to the houses. The cost is the only obstacle, but something should be done without delay.

ST. ANDREWS.

Dinas Powis village is increasing rapidly.

Water Supply.—More money was borrowed and the water supply extended to several new houses. The supplementary supply from the Corporation mains alone saved the village from water famine last summer. The well supplying the 14 houses called Chamberlain Row, at Eastbrook, was found to be dangerously polluted, and an order to close it was obtained. The Cardiff water is now being laid on.

Drainage.—A scheme for sewerage Dinas Powis and Eastbrook is in course of preparation by your Surveyor. The cesspools are at present a source of trouble and nuisance. The scavenging was carried out satisfactorily.

ST. NICHOLAS.

The water supply to this village stood the test of last summer's drought

although it only consisted of roof water stored in underground tanks. The village was generally healthy.

SULLY.

The general structure of the houses in this district is old-fashioned and mostly unhealthy. Suitable new houses are very much required for the working-classes.

The water supply is very deficient, a general supply should be procured for this part as soon as possible.

VAN.

There are a number of houses at Wernddu, having no other water supply than that from the adjoining brooks, which run nearly dry in summer, and are largely contaminated with vegetable organic matter.

WENVOE.

The village water supply failed for some weeks last summer, but when you had arranged for resinking the well, it suddenly returned. The cleansing of the village pond had also to be deferred owing to the heavy rains.

WHITCHURCH.

Water Supply.—Several miles of new mains were laid throughout this parish, and Melingriffith has recently been supplied with Corporation water. A few houses near the Tin Works are still without it. Several cases of Typhoid fever have cropped up from time to time at the Tin Works through drinking impure water. The Corporation have now agreed to extend their mains to Tongwynlais this Spring. You are arranging for the execution of the sewerage scheme for Whitchurch and adjacent villages in sections so as to complete the same on an early date.

RUMNEY.

The most populous part of this parish is supplied with water from three public pumps, maintained by your Authority. This supply held out well during the summer drought. You have recently instituted inquiries of the local landowners at the request of the electors, so as to provide additional allotments for the labouring population of the parish.

ST. MELLONS.

The water supply of this village is from two springs. The one near the schools is not easy of access and fails in summer, and the other is not beyond the risk of contamination.

NEW STREETS AND BUILDINGS.

The Bye-laws which came in force throughout the whole of your district in November 1892, have been carried out as well as possible, but assistance for this work is urgently required as greater supervision is needed than that which the Surveyor can accomplish over such a large area.

NEW HOUSES.

Certificates of water supply under Section 6 of the Public Health (Water) Act, 1878, were granted for 130 new houses during the year.

SLAUGHTER HOUSES.

The Slaughter-Houses in Llandaff gave some trouble but an improvement in this respect was observed from that experienced in former years. Other Slaughter-Houses throughout the district were duly inspected and the nuisances abated.

DAIRIES, COWSHEDS, AND MILKSHOPS.

Three hundred and fifteen Dairies and Cowsheds are at present registered in your district. These premises were duly inspected and the Rules enforced.

LIST OF NUISANCES.

Animals kept so as to be a nuisance	...	...	...	50
Buildings unfit for human habitation closed	...	...	...	18
Dilapidated houses repaired	...	...	...	45
Dangerous quarries	...	...	...	5
From want of proper privy accommodation	...	...	...	50
From want of proper drainage	...	...	...	379
From want of ventilation	...	...	...	90
From want of light	...	...	...	25
From overcrowding	...	...	...	50
Foul ditches	...	...	...	70
Foul and improper cesspools	A great many of these were filled in when the House-connections were made at Llandaff Yard Maindy & Ely			400
Foul drains	do.	do.	do.	215
Foul and improper ashpits	...	...	...	50
Foul accumulations or deposits	...	...	...	190
Foul and improper Cowsheds and Dairies	...	...	...	50
Foul bakehouses	...	...	...	8
Foul and improper slaughter-houses	...	...	...	12
Foul wells cleansed	...	...	...	25
Foul wells closed (at Llandaff Yard chiefly)	...	...	...	200
Foul dwelling-houses cleansed	...	...	...	30
Foul yards cleansed	...	...	...	110
Foul and improper water closets (Ely, Llandaff Yard & City)	...	...	...	250
Foul and improper privies (Ely, Llandaff Yard & Maindy)	...	...	...	500
Foul water courses	...	...	...	25
Foul and improper earth closets	...	...	...	50
Foul and improper urinals	...	...	...	10
Improper water supply (Whitchurch, Llanishen, Ely, Llandaff Yard and City.)	...	...	...	760
Offensive trades	...	...	...	15
Private wells and pumps repaired	...	...	...	20
Privies converted into earth closets	...	...	...	25
Rivers pollution cases	...	...	...	30
Smoky chimneys	...	...	...	5
Houses disinfected	...	...	...	230
Total				3,992

WEATHER DURING 1893.

I am under deep obligations to Franklen G. Evans, Esq., J.P., F.R.A.S. & M.S., etc., for the following concise account of the weather during the year, as observed at Llwynarthen, Castleton, near Cardiff:—

JANUARY was a month of mixed character, alternately wet and fine in equal proportions. N.W. winds predominated. The barometer was fairly high and steady. The mean degree of humidity was 87, complete saturation being represented by 100. Rainfall was light—2·27 inches—and it fell on 16 days. Ozone was abundant, mean degree 5·677. The mean temperature was 36·7 degrees, $\frac{2}{10}$ ths below the mean.

FEBRUARY was damp, mild, and rainy. S.W. winds preponderated. Barometer low—range 1·61 inch. Humidity 90. Rainfall heavy and continuous—5·76 inches—distributed over 23 days. Ozone well-developed—mean degree 6·143. The average heat was 42·5 degrees, 3·8 deg. above the mean.

MARCH was remarkably fine, dry, and warm. N.W. winds prevailed. Barometer was high and steady—range ·91 inch. Humidity was 79. Rainfall very light—only ·34 inch—spread over 7 days. Ozone not abundant—mean 4·065. The mean temperature was 47·5 deg.—nearly 6 deg. above the average. Quite a summer month.

APRIL was a singularly fine, dry, and hot month. N.E. winds were greatly in excess, but so gentle as to lose their customary character. Barometer remarkably high and steady—range only ·58 inch. Humidity 70. Rainfall almost absent, ·18 inch only—it fell on 3 days. Ozone scanty—mean 3·667. Mean temperature very high—53·8 deg.—7·6 deg. over average.

MAY was hot and dry on the whole, but copious showers refreshed the middle of the month. Light N.E. winds predominated. The barometer was fairly high and range moderate—·82 inch. Mean humidity, 70. Rainfall 2·52 inches, distributed over 13 days. Mean ozone, 4·516. The mean heat was 58·3 deg.—4·5 deg. above the average.

JUNE.—Weather again fine, warm, and dry. N.E. winds of gentle force again preponderated. Barometer high and fairly steady—range ·96 inch. Mean humidity only 67. Rainfall very light—·67 inch—spread over 8 days. Ozone deficient—mean degree 3·233. The mean heat was high—63·5 deg.—4·2 deg. above the normal.

JULY was warm and generally fine, with moderate moisture. W. and N. winds prevailed. Barometer fairly high and steady—range ·77 inch. Mean humidity, 68. Rainfall more abundant—3·52 inches, and it fell on 18 days. Mean Ozone 4·968. The mean heat was high—64·5 deg. 2·7 deg. above the average.

AUGUST was hot and brilliant, with occasional showers. S.W. winds greatly predominated. Barometer high and steady—range $\cdot 76$ inch. Air dry—mean humidity, 68. Rainfall light, $2\cdot 57$ inches, distributed over 13 days. Mean ozone, $4\cdot 935$. The mean heat was high— $65\cdot 4$ degrees— $4\cdot 2$ deg. above the average.

SEPTEMBER was fine, warm, & dry. N.W. winds preponderated. The barometer was fairly high—range $1\cdot 02$ inch. Mean humidity 73. Rainfall light, $1\cdot 87$ inch, spread over 14 days. Mean ozone $4\cdot 733$, Mean temperature $58\cdot 2$ degrees, $1\cdot 6$ degrees above the average.

OCTOBER was very mild and wet. S.W. winds prevailed. Barometer low and often unsteady—range $1\cdot 27$ inch. Humidity 81. Rainfall heavy and broke up the long drought. It measured $6\cdot 49$ inches and fell on 20 days. Mean ozone $4\cdot 774$. Mean heat $51\cdot 7$ deg., $1\cdot 5$ deg. above average.

NOVEMBER was a mixed month, with wet and fine alternately. E. & N. wind predominated. Barometer high but unsteady—range $1\cdot 40$ inch. Mean humidity 82. The rainfall was light $2\cdot 05$ inches, divided over 13 days. Ozone $4\cdot 833$. The mean heat was $43\cdot 4$ deg. $\frac{3}{10}$ deg. above the average.

DECEMBER was a mild and moderately wet month. The opening and close were fine, but the middle rough and rainy. S.W. winds preponderated. Barometer unsteady with the wide range of $2\cdot 12$ inches. Mean humidity 88. Rainfall $4\cdot 21$ inches, distributed over 19 days. Ozone $5\cdot 226$. Mean heat $41\cdot 6$ deg., $1\cdot 8$ deg. over the average. The peculiarity of the year was its long dry summer, practically seven months in duration.

I am, Gentlemen,

Your obedient Servant,

R. PRICHARD.

14, WINDSOR PLACE,
CARDIFF.

TABLE OF DEATHS during the Year 1893 in the Rural Sanitary District of Cardiff classified according to Diseases, Ages, and Localities, showing also the Population of such Localities, Births during the year, and new cases of Infectious Diseases coming to the knowledge of the Medical Officer of Health.

TABLE "A."										TABLE "B."																								
PARISHES.	Population at all ages.		Registered Births.	Mortality from all causes at subjoined ages.							Mortality from subjoined causes distinguishing Deaths of Children under Five Years of Age.												New cases of sickness in each locality, coming to the knowledge of the Medical Officer of Health.											
	Census 1891.	Estimated to middle 1893.		At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Influenza.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.		Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Phthisis.	Bronchitis, Pneumonia & Pleurisy.	Heart Disease.	Injuries.	All other Diseases.	Total.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.			Erysipelas.	Whooping Cough.
															Enteric or Typhoid.	Puerperal.														Enteric or Typhoid.	Continued.	Puerperal.		
Bonvilstone	219	219	2	1	...	...	...	...	1	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...	...	1	2
Caerau	187	187	13	2	...	...	...	...	2	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	2	...	...	...	...	...	...	...
Highlight	15	15	...	...	...	...	...	...	...	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lavernock	78	78	3	1	...	...	...	...	1	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...	...	...	...	...
Leckwith	122	122	5	2	...	1	...	...	1	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...	...	...	...	...	...
Lisvane	248	248	8	3	2	1	...	...	...	Under 5...	1	1	...	...	...	...	...	...	...	...	...	1	...	...	...	3	1	...	...	...	...	...	...	...
Llanarvan	548	548	12	6	2	...	1	...	2	Under 5...	1	...	...	...	...	...	...	...	...	...	...	1	2	...	2	2	2	6	...	...	...	...	...	1
Llandaff	4375	4765	141	67	16	6	13	6	14	Under 5...	3	2	...	1	...	...	...	...	...	6	1	3	...	11	22	12	2	1	...	...	...	...	...	14
Llanedarnae	290	290	2	1	...	...	...	...	1	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...	...	...	...	...
Llanillterne	97	97	1	3	1	...	...	...	1	Under 5...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1	...	...	...	...	...	...	...	...	...
Llanishen	691	720	19	11	3	...	...	2	5	Under 5...	...	1	...	...	...	...	...	...	...	...	1	2	...	4	8	1	...	...	...	...	...	...	2	...
Llantrithyd	155	155	2	...	...	...	...	...	...	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Llanvthythin	29	29	...	...	...	...	...	...	...	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Michaelstone-le-Pit	102	102	...	...	...	...	...	...	...	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Michaelstone-super-Ely	52	52	...	2	...	...	...	...	1	Under 5...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	2	...	...	...	...	...	...	...	...	...
Pendoylan	352	352	5	3	...	...	...	1	...	Under 5...	...	...	...	...	...	...	...	...	...	...	1	...	...	2	3	...	...	...	...	...	...	...	...	...
Penmark	548	548	14	9	1	1	1	1	4	Under 5...	...	1	...	...	...	...	...	...	...	...	1	...	...	1	2	...	...	...	...	...	...	...	...	4
Pentyrch	1693	1723	56	28	9	3	1	...	5	Under 5...	...	...	...	...	...	...	...	...	...	...	1	1	...	5	12	3	3	1	1	...	...	...	...	4
Peterstone-super-Ely	285	235	10	3	...	...	1	...	2	Under 5...	...	...	...	...	...	...	...	...	...	...	1	1	...	1	3	5	...	...	...	...	...	...	...	...
Porthkerry	145	145	5	2	1	...	...	...	1	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	1	...	...	...	...	...	...	...	...
Radyr	610	627	25	16	7	1	...	1	4	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	8	...	...	...	...	...	...	...	...
Rudry	409	429	20	12	1	3	1	2	3	Under 5...	...	...	1	...	...	...	...	...	...	...	...	2	...	5	8	...	...	...	...	...	...	...	...	...
St. Andrews	1094	1138	45	17	5	2	1	1	5	Under 5...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	3	7	9	...	...	...	...	...	...	2
St. Brides-super-Ely	94	92	5	1	...	1	...	...	...	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...
St. Fagans	490	493	17	8	...	1	...	...	3	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	7	11	...	...	...	...	...	...	...
St. Georges	261	261	7	4	1	...	...	...	3	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...
St. Lythans	111	111	3	...	...	...	...	...	...	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...
St. Nicholas	316	316	10	4	...	...	...	...	1	Under 5...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	1	4	1	...	...	...	...	...	...	...
Sully (part of)	152	152	5	2	...	...	...	...	1	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Van	247	247	11	5	1	...	1	1	2	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...
Welsh St. Donatts	188	188	3	1	1	...	...	...	...	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	4	...	...	...	...	...	...	...	...
Wenvoe	445	445	8	7	...	1	...	...	2	Under 5...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	6	...	...	...	...	...	...	...	...	...
Whitchurch	3322	3375	122	62	17	2	1	5	19	Under 5...	...	...	1	...	...	...	...	...	...	2	...	3	...	13	19	5	1	...	...	...	...	...	...	...
Rumney	540	547	20	3	...	1	...	...	2	Under 5...	...	...	...	...	...	...	...	...	...	...	...	7	5	7	2	43	1	2	...	...	...	...	...	...
St. Mellons	650	667	9	8	...	1	...	1	3	Under 5...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	...	...
Totals	19160	19718	608	294	68	25	21	21	82	Under 5...	1	4	2	3	...	...	...	1	2	17	2	13	...	...	48	93	46	3	2	...	...	...	...	37
										5 upwards	9	2	1	...	5	1	2	...	...	3	32	21	...	...	87	201	115	24	1	28	3	1	9	13

